**Министерство науки и высшего образования Российской Федерации**

федеральное государственное автономное образовательное учреждение высшего образования

**«НАЦИОНАЛЬНЫЙ ИССЛЕДОВАТЕЛЬСКИЙ УНИВЕРСИТЕТ ИТМО»**

**Отчет**

по лабораторной работе №3.2 «Создание таблиц базы данных PostgreSQL. Заполнение таблиц рабочими данными»

по дисциплине **«Проектирование и реализация баз данных»**

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Санкт-Петербург 2023

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# Цель работы

# Овладеть практическими навыками создания таблиц базы данных PostgreSQL 1Х, заполнения их рабочими данными, резервного копирования и восстановления БД.

# Практическое задание

# Создать базу данных с использованием pgAdmin 4 (согласно индивидуальному заданию).

# Создать схему в составе базы данных.

# Создать таблицы базы данных.

# Установить ограничения на данные: Primary Key, Unique, Check, Foreign Key.

# Заполнить таблицы БД рабочими данными.

# Создать резервную копию БД.

# Указание:

# Создать две резервные копии:

# - с расширением CUSTOM для восстановления БД;

# - с расширением PLAIN для листинга (в отчете);

# - при создании резервных копий БД настроить параметры Dump options для Type of objects и Queries.

# Восстановить БД.

# Вариант 12. БД «Прокат автомобилей»

**Описание предметной области:**

Схема логической модели базы данных, сгенерированная в Generate ERD указана на рисунке 1.

# Рисунок 1 – Схема логической модели базы данных.

# Листинг дампа:

--

-- PostgreSQL database dump

--

-- Dumped from database version 14.9 (Ubuntu 14.9-0ubuntu0.22.04.1)

-- Dumped by pg\_dump version 16.0

-- Started on 2023-10-22 17:42:39

**SET** statement\_timeout = **0**;

**SET** lock\_timeout = **0**;

**SET** idle\_in\_transaction\_session\_timeout = **0**;

**SET** client\_encoding = 'UTF8';

**SET** standard\_conforming\_strings = **on**;

**SELECT** pg\_catalog.set\_config('search\_path', '', **false**);

**SET** check\_function\_bodies = **false**;

**SET** xmloption = content;

**SET** client\_min\_messages = warning;

**SET** row\_security = **off**;

--

-- TOC entry 3435 (class 1262 OID 41289)

-- Name: dbalexyrkn; Type: DATABASE; Schema: -; Owner: postgres

--

**CREATE** **DATABASE** dbalexyrkn **WITH** **TEMPLATE** = template0 **ENCODING** = 'UTF8' LOCALE\_PROVIDER = libc LOCALE = 'C.UTF-8';

**ALTER** **DATABASE** dbalexyrkn **OWNER** **TO** postgres;

\**connect** dbalexyrkn

**SET** statement\_timeout = **0**;

**SET** lock\_timeout = **0**;

**SET** idle\_in\_transaction\_session\_timeout = **0**;

**SET** client\_encoding = 'UTF8';

**SET** standard\_conforming\_strings = **on**;

**SELECT** pg\_catalog.set\_config('search\_path', '', **false**);

**SET** check\_function\_bodies = **false**;

**SET** xmloption = content;

**SET** client\_min\_messages = warning;

**SET** row\_security = **off**;

--

-- TOC entry 4 (class 2615 OID 2200)

-- Name: public; Type: SCHEMA; Schema: -; Owner: postgres

--

-- \*not\* creating schema, since initdb creates it

**ALTER** **SCHEMA** **public** **OWNER** **TO** postgres;

**SET** default\_tablespace = '';

**SET** default\_table\_access\_method = heap;

--

-- TOC entry 216 (class 1259 OID 41574)

-- Name: act; Type: TABLE; Schema: public; Owner: dbalexyrkn

--

-- Создание таблицы актов

**CREATE** **TABLE** **public**.act (

id integer **NOT** **NULL**,

contract integer **NOT** **NULL**,

**data** character varying(**50**) **NOT** **NULL**,

act\_date date **NOT** **NULL**,

act\_type character varying(**25**) **NOT** **NULL**

);

**ALTER** **TABLE** **public**.act **OWNER** **TO** dbalexyrkn;

--

-- TOC entry 210 (class 1259 OID 41308)

-- Name: car; Type: TABLE; Schema: public; Owner: dbalexyrkn

--

-- Создание таблицы машин

**CREATE** **TABLE** **public**.car (

id integer **NOT** **NULL**,

deposit integer **NOT** **NULL**,

registration\_number character varying(**25**) **NOT** **NULL**,

plate\_number character varying(**9**) **NOT** **NULL**,

engine\_number character varying(**17**) **NOT** **NULL**,

body\_number character varying(**17**) **NOT** **NULL**,

car\_year integer **NOT** **NULL**,

mileage integer **DEFAULT** **0** **NOT** **NULL**,

car\_price integer **NOT** **NULL**,

rent\_price integer **NOT** **NULL**,

inspection\_date date **NOT** **NULL**,

remarks character varying(**50**),

return\_receipt character varying(**25**),

time\_in\_rent integer **DEFAULT** **0** **NOT** **NULL**,

model integer **NOT** **NULL**

);

**ALTER** **TABLE** **public**.car **OWNER** **TO** dbalexyrkn;

--

-- TOC entry 214 (class 1259 OID 41511)

-- Name: client; Type: TABLE; Schema: public; Owner: dbalexyrkn

--

-- Создание таблицы клиентов

**CREATE** **TABLE** **public**.client (

id integer **NOT** **NULL**,

phone character varying(**11**) **NOT** **NULL**,

name character varying(**100**) **NOT** **NULL**,

address character varying(**100**) **NOT** **NULL**,

country character varying(**35**) **NOT** **NULL**,

remarks character varying(**100**),

sale integer **DEFAULT** **0** **NOT** **NULL**,

time\_in\_rent integer **DEFAULT** **0** **NOT** **NULL**,

passport character varying(**10**) **NOT** **NULL**,

**CONSTRAINT** sale **CHECK** (((sale >= **0**) **AND** (sale <= **100**)))

);

**ALTER** **TABLE** **public**.client **OWNER** **TO** dbalexyrkn;

--

-- TOC entry 215 (class 1259 OID 41521)

-- Name: contract; Type: TABLE; Schema: public; Owner: dbalexyrkn

--

-- Создание таблицы договоров

**CREATE** **TABLE** **public**.contract (

id integer **NOT** **NULL**,

price integer **NOT** **NULL**,

startdate date **NOT** **NULL**,

enddate date **NOT** **NULL**,

status character varying(**25**) **NOT** **NULL**,

payment\_status character varying(**25**) **NOT** **NULL**,

client integer **NOT** **NULL**,

employee integer **NOT** **NULL**,

car integer **NOT** **NULL**,

insurance integer **NOT** **NULL**,

**CONSTRAINT** "start < end" **CHECK** ((startdate < enddate)),

**CONSTRAINT** startdate **CHECK** ((startdate > '2023-10-20'::date))

);

**ALTER** **TABLE** **public**.contract **OWNER** **TO** dbalexyrkn;

--

-- TOC entry 218 (class 1259 OID 41595)

-- Name: crash; Type: TABLE; Schema: public; Owner: dbalexyrkn

--

-- Создание таблицы аварий

**CREATE** **TABLE** **public**.crash (

id integer **NOT** **NULL**,

contract integer **NOT** **NULL**,

place character varying(**50**) **NOT** **NULL**,

date date **NOT** **NULL**,

guilty character varying(**35**) **NOT** **NULL**,

price integer **NOT** **NULL**,

description character varying(**100**) **NOT** **NULL**,

**CONSTRAINT** price **CHECK** ((price > **0**))

);

**ALTER** **TABLE** **public**.crash **OWNER** **TO** dbalexyrkn;

--

-- TOC entry 213 (class 1259 OID 41489)

-- Name: employee; Type: TABLE; Schema: public; Owner: dbalexyrkn

--

-- Создание таблицы сотрудников

**CREATE** **TABLE** **public**.employee (

id integer **NOT** **NULL**,

name character varying **NOT** **NULL**,

job integer **NOT** **NULL**,

passport character varying **NOT** **NULL**

);

**ALTER** **TABLE** **public**.employee **OWNER** **TO** dbalexyrkn;

--

-- TOC entry 211 (class 1259 OID 41477)

-- Name: insurance; Type: TABLE; Schema: public; Owner: dbalexyrkn

--

-- Создание таблицы страховок

**CREATE** **TABLE** **public**.insurance (

id integer **NOT** **NULL**,

price integer **NOT** **NULL**,

**type** character varying(**50**) **NOT** **NULL**,

**CONSTRAINT** price **CHECK** ((price > **0**))

);

**ALTER** **TABLE** **public**.insurance **OWNER** **TO** dbalexyrkn;

--

-- TOC entry 212 (class 1259 OID 41483)

-- Name: job; Type: TABLE; Schema: public; Owner: dbalexyrkn

--

-- Создание таблицы должностей

**CREATE** **TABLE** **public**.job (

id integer **NOT** **NULL**,

salary integer **NOT** **NULL**,

duties character varying(**200**) **NOT** **NULL**,

name character varying(**25**) **NOT** **NULL**,

**CONSTRAINT** salary **CHECK** ((salary > **0**))

);

**ALTER** **TABLE** **public**.job **OWNER** **TO** dbalexyrkn;

--

-- TOC entry 209 (class 1259 OID 41290)

-- Name: model; Type: TABLE; Schema: public; Owner: dbalexyrkn

--

-- Создание таблицы марок машин

**CREATE** **TABLE** **public**.model (

id integer **NOT** **NULL**,

name character varying(**100**) **NOT** **NULL**,

techs character varying(**100**) **NOT** **NULL**,

description character varying(**100**) **NOT** **NULL**,

"time" integer **DEFAULT** **0** **NOT** **NULL**

);

**ALTER** **TABLE** **public**.model **OWNER** **TO** dbalexyrkn;

--

-- TOC entry 217 (class 1259 OID 41584)

-- Name: prolongation; Type: TABLE; Schema: public; Owner: dbalexyrkn

--

-- Создание таблицы продление

**CREATE** **TABLE** **public**.prolongation (

id integer **NOT** **NULL**,

contract integer **NOT** **NULL**,

date date **NOT** **NULL**,

hours integer **NOT** **NULL**,

**CONSTRAINT** hours **CHECK** ((hours > **0**))

);

**ALTER** **TABLE** **public**.prolongation **OWNER** **TO** dbalexyrkn;

--

-- TOC entry 220 (class 1259 OID 41612)

-- Name: violation; Type: TABLE; Schema: public; Owner: dbalexyrkn

--

-- Создание таблицы нарушений

**CREATE** **TABLE** **public**.violation (

id integer **NOT** **NULL**,

contract integer **NOT** **NULL**,

**type** integer **NOT** **NULL**,

crash integer **NOT** **NULL**,

payer character varying(**35**) **NOT** **NULL**,

date date **NOT** **NULL**,

place character varying(**50**) **NOT** **NULL**

);

**ALTER** **TABLE** **public**.violation **OWNER** **TO** dbalexyrkn;

--

-- TOC entry 219 (class 1259 OID 41606)

-- Name: violation\_type; Type: TABLE; Schema: public; Owner: dbalexyrkn

--

-- Созданией таблицы типов нарушений

**CREATE** **TABLE** **public**.violation\_type (

id integer **NOT** **NULL**,

description character varying(**100**) **NOT** **NULL**,

price integer **NOT** **NULL**,

**type** character varying(**50**) **NOT** **NULL**,

**CONSTRAINT** price **CHECK** ((price > **0**))

);

**ALTER** **TABLE** **public**.violation\_type **OWNER** **TO** dbalexyrkn;

-- Вставка рабочий данных

--

-- TOC entry 3425 (class 0 OID 41574)

-- Dependencies: 216

-- Data for Name: act; Type: TABLE DATA; Schema: public; Owner: dbalexyrkn

--

**INSERT** **INTO** **public**.act **VALUES** (**1**, **1**, 'Some data content', '2023-10-06', 'Type A');

**INSERT** **INTO** **public**.act **VALUES** (**2**, **2**, 'Another data content', '2023-10-12', 'Type B');

**INSERT** **INTO** **public**.act **VALUES** (**3**, **3**, 'Yet another data content', '2023-10-08', 'Type C');

--

-- TOC entry 3419 (class 0 OID 41308)

-- Dependencies: 210

-- Data for Name: car; Type: TABLE DATA; Schema: public; Owner: dbalexyrkn

--

**INSERT** **INTO** **public**.car **VALUES** (**1**, **500**, 'XYZ1234', 'ABC-123', 'ENG001', 'BODY001', **2023**, **1200**, **25000**, **1000**, '2023-10-01', 'No remarks', 'false', **0**, **1**);

**INSERT** **INTO** **public**.car **VALUES** (**2**, **600**, 'LMN5678', 'DEF-456', 'ENG002', 'BODY002', **2023**, **5400**, **30000**, **1100**, '2023-09-20', 'Good condition', 'false', **0**, **2**);

**INSERT** **INTO** **public**.car **VALUES** (**3**, **700**, 'OPQ9101', 'GHI-789', 'ENG003', 'BODY003', **2022**, **6800**, **35000**, **1300**, '2023-07-18', 'Minor scratches', 'false', **0**, **3**);

--

-- TOC entry 3423 (class 0 OID 41511)

-- Dependencies: 214

-- Data for Name: client; Type: TABLE DATA; Schema: public; Owner: dbalexyrkn

--

**INSERT** **INTO** **public**.client **VALUES** (**1**, '+1234567890', 'John Doe', '123 Elm St, Springfield', 'USA', **NULL**, **10**, **0**, 'P123456789');

**INSERT** **INTO** **public**.client **VALUES** (**2**, '+0987654321', 'Alice Brown', '456 Maple St, Metropolis', 'Canada', **NULL**, **5**, **0**, 'P234567890');

**INSERT** **INTO** **public**.client **VALUES** (**3**, '+1122334455', 'Charlie White', '789 Pine St, Gotham', 'UK', **NULL**, **7**, **0**, 'P345678901');

--

-- TOC entry 3424 (class 0 OID 41521)

-- Dependencies: 215

-- Data for Name: contract; Type: TABLE DATA; Schema: public; Owner: dbalexyrkn

--

**INSERT** **INTO** **public**.contract **VALUES** (**1**, **250**, '2023-10-21', '2023-10-25', 'Active', 'Paid', **1**, **1**, **1**, **1**);

**INSERT** **INTO** **public**.contract **VALUES** (**2**, **280**, '2023-10-22', '2023-10-25', 'Active', 'Paid', **2**, **2**, **2**, **2**);

**INSERT** **INTO** **public**.contract **VALUES** (**3**, **320**, '2023-11-05', '2023-11-09', 'Completed', 'Paid', **3**, **3**, **3**, **3**);

--

-- TOC entry 3427 (class 0 OID 41595)

-- Dependencies: 218

-- Data for Name: crash; Type: TABLE DATA; Schema: public; Owner: dbalexyrkn

--

**INSERT** **INTO** **public**.crash **VALUES** (**1**, **1**, 'Downtown', '2023-10-05', 'Client', **100**, 'Minor dent on the rear bumper.');

**INSERT** **INTO** **public**.crash **VALUES** (**2**, **2**, 'Suburbia', '2023-10-11', 'Nature', **150**, 'Broken windshield from a tree branch.');

**INSERT** **INTO** **public**.crash **VALUES** (**3**, **3**, 'Uptown', '2023-10-07', 'Client', **70**, 'Scratch on the left door.');

--

-- TOC entry 3422 (class 0 OID 41489)

-- Dependencies: 213

-- Data for Name: employee; Type: TABLE DATA; Schema: public; Owner: dbalexyrkn

--

**INSERT** **INTO** **public**.employee **VALUES** (**1**, 'Jane Smith', **1**, 'P987654321');

**INSERT** **INTO** **public**.employee **VALUES** (**2**, 'Eve Green', **2**, 'P876543210');

**INSERT** **INTO** **public**.employee **VALUES** (**3**, 'Lucas Gray', **3**, 'P765432109');

--

-- TOC entry 3420 (class 0 OID 41477)

-- Dependencies: 211

-- Data for Name: insurance; Type: TABLE DATA; Schema: public; Owner: dbalexyrkn

--

**INSERT** **INTO** **public**.insurance **VALUES** (**1**, **150**, 'Basic Coverage');

**INSERT** **INTO** **public**.insurance **VALUES** (**2**, **250**, 'Premium Coverage');

**INSERT** **INTO** **public**.insurance **VALUES** (**3**, **200**, 'Intermediate Coverage');

--

-- TOC entry 3421 (class 0 OID 41483)

-- Dependencies: 212

-- Data for Name: job; Type: TABLE DATA; Schema: public; Owner: dbalexyrkn

--

**INSERT** **INTO** **public**.job **VALUES** (**1**, **50000**, 'Manage car inventory', 'Manager');

**INSERT** **INTO** **public**.job **VALUES** (**2**, **40000**, 'Car maintenance and repair', 'Mechanic');

**INSERT** **INTO** **public**.job **VALUES** (**3**, **30000**, 'Customer relations and bookings', 'Receptionist');

--

-- TOC entry 3418 (class 0 OID 41290)

-- Dependencies: 209

-- Data for Name: model; Type: TABLE DATA; Schema: public; Owner: dbalexyrkn

--

**INSERT** **INTO** **public**.model **VALUES** (**1**, 'Sedan X', 'Hybrid', 'A compact sedan with a hybrid powertrain.', **0**);

**INSERT** **INTO** **public**.model **VALUES** (**2**, 'Coupe Z', 'Electric', 'Two-door sports car with an electric powertrain.', **0**);

**INSERT** **INTO** **public**.model **VALUES** (**3**, 'SUV Y', 'Diesel', 'Spacious SUV with a diesel engine.', **0**);

--

-- TOC entry 3426 (class 0 OID 41584)

-- Dependencies: 217

-- Data for Name: prolongation; Type: TABLE DATA; Schema: public; Owner: dbalexyrkn

--

**INSERT** **INTO** **public**.prolongation **VALUES** (**1**, **1**, '2023-10-07', **24**);

**INSERT** **INTO** **public**.prolongation **VALUES** (**2**, **2**, '2023-10-13', **48**);

**INSERT** **INTO** **public**.prolongation **VALUES** (**3**, **3**, '2023-10-10', **36**);

--

-- TOC entry 3429 (class 0 OID 41612)

-- Dependencies: 220

-- Data for Name: violation; Type: TABLE DATA; Schema: public; Owner: dbalexyrkn

--

**INSERT** **INTO** **public**.violation **VALUES** (**1**, **1**, **1**, **1**, 'Client', '2023-10-05', 'Downtown');

**INSERT** **INTO** **public**.violation **VALUES** (**2**, **2**, **2**, **2**, 'Client', '2023-10-14', 'Highway');

**INSERT** **INTO** **public**.violation **VALUES** (**3**, **3**, **3**, **3**, 'Client', '2023-10-07', 'Main Street');

--

-- TOC entry 3428 (class 0 OID 41606)

-- Dependencies: 219

-- Data for Name: violation\_type; Type: TABLE DATA; Schema: public; Owner: dbalexyrkn

--

**INSERT** **INTO** **public**.violation\_type **VALUES** (**1**, 'Parking violation', **50**, 'Parking');

**INSERT** **INTO** **public**.violation\_type **VALUES** (**2**, 'Speeding violation', **100**, 'Speeding');

**INSERT** **INTO** **public**.violation\_type **VALUES** (**3**, 'Red light violation', **80**, 'Traffic Light');

-- Добавление ограничений и FK, PK

--

-- TOC entry 3258 (class 2606 OID 41578)

-- Name: act Act\_pkey; Type: CONSTRAINT; Schema: public; Owner: dbalexyrkn

--

**ALTER** **TABLE** **ONLY** **public**.act

**ADD** **CONSTRAINT** "Act\_pkey" **PRIMARY** **KEY** (id);

--

-- TOC entry 3234 (class 2606 OID 41465)

-- Name: car Body number; Type: CONSTRAINT; Schema: public; Owner: dbalexyrkn

--

**ALTER** **TABLE** **ONLY** **public**.car

**ADD** **CONSTRAINT** "Body number" **UNIQUE** (body\_number);

--

-- TOC entry 3236 (class 2606 OID 41314)

-- Name: car Car\_pkey; Type: CONSTRAINT; Schema: public; Owner: dbalexyrkn

--

**ALTER** **TABLE** **ONLY** **public**.car

**ADD** **CONSTRAINT** "Car\_pkey" **PRIMARY** **KEY** (id);

--

-- TOC entry 3252 (class 2606 OID 41518)

-- Name: client Client\_pkey; Type: CONSTRAINT; Schema: public; Owner: dbalexyrkn

--

**ALTER** **TABLE** **ONLY** **public**.client

**ADD** **CONSTRAINT** "Client\_pkey" **PRIMARY** **KEY** (id);

--

-- TOC entry 3256 (class 2606 OID 41527)

-- Name: contract Contract\_pkey; Type: CONSTRAINT; Schema: public; Owner: dbalexyrkn

--

**ALTER** **TABLE** **ONLY** **public**.contract

**ADD** **CONSTRAINT** "Contract\_pkey" **PRIMARY** **KEY** (id);

--

-- TOC entry 3262 (class 2606 OID 41600)

-- Name: crash Crash\_pkey; Type: CONSTRAINT; Schema: public; Owner: dbalexyrkn

--

**ALTER** **TABLE** **ONLY** **public**.crash

**ADD** **CONSTRAINT** "Crash\_pkey" **PRIMARY** **KEY** (id);

--

-- TOC entry 3248 (class 2606 OID 41495)

-- Name: employee Employee\_pkey; Type: CONSTRAINT; Schema: public; Owner: dbalexyrkn

--

**ALTER** **TABLE** **ONLY** **public**.employee

**ADD** **CONSTRAINT** "Employee\_pkey" **PRIMARY** **KEY** (id);

--

-- TOC entry 3238 (class 2606 OID 41463)

-- Name: car Engine number; Type: CONSTRAINT; Schema: public; Owner: dbalexyrkn

--

**ALTER** **TABLE** **ONLY** **public**.car

**ADD** **CONSTRAINT** "Engine number" **UNIQUE** (engine\_number);

--

-- TOC entry 3244 (class 2606 OID 41482)

-- Name: insurance Insurance\_pkey; Type: CONSTRAINT; Schema: public; Owner: dbalexyrkn

--

**ALTER** **TABLE** **ONLY** **public**.insurance

**ADD** **CONSTRAINT** "Insurance\_pkey" **PRIMARY** **KEY** (id);

--

-- TOC entry 3246 (class 2606 OID 41488)

-- Name: job Job\_pkey; Type: CONSTRAINT; Schema: public; Owner: dbalexyrkn

--

**ALTER** **TABLE** **ONLY** **public**.job

**ADD** **CONSTRAINT** "Job\_pkey" **PRIMARY** **KEY** (id);

--

-- TOC entry 3232 (class 2606 OID 41295)

-- Name: model Model\_pkey; Type: CONSTRAINT; Schema: public; Owner: dbalexyrkn

--

**ALTER** **TABLE** **ONLY** **public**.model

**ADD** **CONSTRAINT** "Model\_pkey" **PRIMARY** **KEY** (id);

--

-- TOC entry 3240 (class 2606 OID 41461)

-- Name: car Plate number; Type: CONSTRAINT; Schema: public; Owner: dbalexyrkn

--

**ALTER** **TABLE** **ONLY** **public**.car

**ADD** **CONSTRAINT** "Plate number" **UNIQUE** (plate\_number);

--

-- TOC entry 3260 (class 2606 OID 41589)

-- Name: prolongation Prolongation\_pkey; Type: CONSTRAINT; Schema: public; Owner: dbalexyrkn

--

**ALTER** **TABLE** **ONLY** **public**.prolongation

**ADD** **CONSTRAINT** "Prolongation\_pkey" **PRIMARY** **KEY** (id);

--

-- TOC entry 3242 (class 2606 OID 41459)

-- Name: car Registration number; Type: CONSTRAINT; Schema: public; Owner: dbalexyrkn

--

**ALTER** **TABLE** **ONLY** **public**.car

**ADD** **CONSTRAINT** "Registration number" **UNIQUE** (registration\_number);

--

-- TOC entry 3266 (class 2606 OID 41616)

-- Name: violation Violation\_pkey; Type: CONSTRAINT; Schema: public; Owner: dbalexyrkn

--

**ALTER** **TABLE** **ONLY** **public**.violation

**ADD** **CONSTRAINT** "Violation\_pkey" **PRIMARY** **KEY** (id);

--

-- TOC entry 3264 (class 2606 OID 41611)

-- Name: violation\_type Violation\_type\_pkey; Type: CONSTRAINT; Schema: public; Owner: dbalexyrkn

--

**ALTER** **TABLE** **ONLY** **public**.violation\_type

**ADD** **CONSTRAINT** "Violation\_type\_pkey" **PRIMARY** **KEY** (id);

--

-- TOC entry 3217 (class 2606 OID 41475)

-- Name: car car\_price; Type: CHECK CONSTRAINT; Schema: public; Owner: dbalexyrkn

--

**ALTER** **TABLE** **public**.car

**ADD** **CONSTRAINT** car\_price **CHECK** ((car\_price >= **0**)) **NOT** **VALID**;

--

-- TOC entry 3218 (class 2606 OID 41472)

-- Name: car car\_year; Type: CHECK CONSTRAINT; Schema: public; Owner: dbalexyrkn

--

**ALTER** **TABLE** **public**.car

**ADD** **CONSTRAINT** car\_year **CHECK** ((car\_year >= **1950**)) **NOT** **VALID**;

--

-- TOC entry 3219 (class 2606 OID 41473)

-- Name: car mileage; Type: CHECK CONSTRAINT; Schema: public; Owner: dbalexyrkn

--

**ALTER** **TABLE** **public**.car

**ADD** **CONSTRAINT** mileage **CHECK** ((mileage >= **0**)) **NOT** **VALID**;

--

-- TOC entry 3250 (class 2606 OID 41633)

-- Name: employee passport; Type: CONSTRAINT; Schema: public; Owner: dbalexyrkn

--

**ALTER** **TABLE** **ONLY** **public**.employee

**ADD** **CONSTRAINT** passport **UNIQUE** (passport);

--

-- TOC entry 3254 (class 2606 OID 41520)

-- Name: client phone; Type: CONSTRAINT; Schema: public; Owner: dbalexyrkn

--

**ALTER** **TABLE** **ONLY** **public**.client

**ADD** **CONSTRAINT** phone **UNIQUE** (phone);

--

-- TOC entry 3225 (class 2606 OID 41548)

-- Name: contract price; Type: CHECK CONSTRAINT; Schema: public; Owner: dbalexyrkn

--

**ALTER** **TABLE** **public**.contract

**ADD** **CONSTRAINT** price **CHECK** ((price > **0**)) **NOT** **VALID**;

--

-- TOC entry 3220 (class 2606 OID 41474)

-- Name: car rent\_price; Type: CHECK CONSTRAINT; Schema: public; Owner: dbalexyrkn

--

**ALTER** **TABLE** **public**.car

**ADD** **CONSTRAINT** rent\_price **CHECK** ((rent\_price >= **0**)) **NOT** **VALID**;

--

-- TOC entry 3221 (class 2606 OID 41476)

-- Name: car time\_in\_rent; Type: CHECK CONSTRAINT; Schema: public; Owner: dbalexyrkn

--

**ALTER** **TABLE** **public**.car

**ADD** **CONSTRAINT** time\_in\_rent **CHECK** ((time\_in\_rent >= **0**)) **NOT** **VALID**;

--

-- TOC entry 3267 (class 2606 OID 41466)

-- Name: car Model; Type: FK CONSTRAINT; Schema: public; Owner: dbalexyrkn

--

**ALTER** **TABLE** **ONLY** **public**.car

**ADD** **CONSTRAINT** "Model" **FOREIGN** **KEY** (model) **REFERENCES** **public**.model(id) **ON** **DELETE** **CASCADE** **NOT** **VALID**;

--

-- TOC entry 3269 (class 2606 OID 41564)

-- Name: contract car; Type: FK CONSTRAINT; Schema: public; Owner: dbalexyrkn

--

**ALTER** **TABLE** **ONLY** **public**.contract

**ADD** **CONSTRAINT** car **FOREIGN** **KEY** (car) **REFERENCES** **public**.car(id) **ON** **DELETE** **SET** **NULL** **NOT** **VALID**;

--

-- TOC entry 3270 (class 2606 OID 41554)

-- Name: contract client; Type: FK CONSTRAINT; Schema: public; Owner: dbalexyrkn

--

**ALTER** **TABLE** **ONLY** **public**.contract

**ADD** **CONSTRAINT** client **FOREIGN** **KEY** (client) **REFERENCES** **public**.client(id) **ON** **DELETE** **SET** **NULL** **NOT** **VALID**;

--

-- TOC entry 3273 (class 2606 OID 41579)

-- Name: act contract; Type: FK CONSTRAINT; Schema: public; Owner: dbalexyrkn

--

**ALTER** **TABLE** **ONLY** **public**.act

**ADD** **CONSTRAINT** contract **FOREIGN** **KEY** (contract) **REFERENCES** **public**.contract(id) **ON** **DELETE** **CASCADE**;

--

-- TOC entry 3274 (class 2606 OID 41590)

-- Name: prolongation contract; Type: FK CONSTRAINT; Schema: public; Owner: dbalexyrkn

--

**ALTER** **TABLE** **ONLY** **public**.prolongation

**ADD** **CONSTRAINT** contract **FOREIGN** **KEY** (contract) **REFERENCES** **public**.contract(id) **ON** **DELETE** **CASCADE**;

--

-- TOC entry 3275 (class 2606 OID 41601)

-- Name: crash contract; Type: FK CONSTRAINT; Schema: public; Owner: dbalexyrkn

--

**ALTER** **TABLE** **ONLY** **public**.crash

**ADD** **CONSTRAINT** contract **FOREIGN** **KEY** (contract) **REFERENCES** **public**.contract(id) **ON** **DELETE** **SET** **NULL**;

--

-- TOC entry 3276 (class 2606 OID 41617)

-- Name: violation contract; Type: FK CONSTRAINT; Schema: public; Owner: dbalexyrkn

--

**ALTER** **TABLE** **ONLY** **public**.violation

**ADD** **CONSTRAINT** contract **FOREIGN** **KEY** (contract) **REFERENCES** **public**.contract(id) **ON** **DELETE** **SET** **NULL**;

--

-- TOC entry 3277 (class 2606 OID 41627)

-- Name: violation crash; Type: FK CONSTRAINT; Schema: public; Owner: dbalexyrkn

--

**ALTER** **TABLE** **ONLY** **public**.violation

**ADD** **CONSTRAINT** crash **FOREIGN** **KEY** (crash) **REFERENCES** **public**.crash(id) **ON** **DELETE** **CASCADE**;

--

-- TOC entry 3271 (class 2606 OID 41559)

-- Name: contract employee; Type: FK CONSTRAINT; Schema: public; Owner: dbalexyrkn

--

**ALTER** **TABLE** **ONLY** **public**.contract

**ADD** **CONSTRAINT** employee **FOREIGN** **KEY** (employee) **REFERENCES** **public**.employee(id) **ON** **DELETE** **SET** **NULL** **NOT** **VALID**;

--

-- TOC entry 3272 (class 2606 OID 41569)

-- Name: contract insurance; Type: FK CONSTRAINT; Schema: public; Owner: dbalexyrkn

--

**ALTER** **TABLE** **ONLY** **public**.contract

**ADD** **CONSTRAINT** insurance **FOREIGN** **KEY** (insurance) **REFERENCES** **public**.insurance(id) **ON** **DELETE** **SET** **NULL** **NOT** **VALID**;

--

-- TOC entry 3268 (class 2606 OID 41549)

-- Name: employee job; Type: FK CONSTRAINT; Schema: public; Owner: dbalexyrkn

--

**ALTER** **TABLE** **ONLY** **public**.employee

**ADD** **CONSTRAINT** job **FOREIGN** **KEY** (job) **REFERENCES** **public**.job(id) **ON** **DELETE** **CASCADE** **NOT** **VALID**;

--

-- TOC entry 3278 (class 2606 OID 41622)

-- Name: violation type; Type: FK CONSTRAINT; Schema: public; Owner: dbalexyrkn

--

**ALTER** **TABLE** **ONLY** **public**.violation

**ADD** **CONSTRAINT** **type** **FOREIGN** **KEY** (**type**) **REFERENCES** **public**.violation\_type(id) **ON** **DELETE** **SET** **NULL**;

--

-- TOC entry 3436 (class 0 OID 0)

-- Dependencies: 4

-- Name: SCHEMA public; Type: ACL; Schema: -; Owner: postgres

--

**REVOKE** **USAGE** **ON** **SCHEMA** **public** **FROM** **PUBLIC**;

**GRANT** **ALL** **ON** **SCHEMA** **public** **TO** **PUBLIC**;

-- Completed on 2023-10-22 17:42:39

--

-- PostgreSQL database dump complete

--

# Вывод

В ходе лабораторной работы я освоил работу с базами данных в PostgreSQL через pgAdmin 4. Создал структуру базы с таблицами и ограничениями, заполнил их данными, создал резервные копии и успешно восстановил БД, подтвердив корректность всех шагов.